

Claims

1. A method of producing an isoquercitrin-enriched composition, said method comprising:
providing a solution having rutin suspended therein at conditions suitable for
enzyme incubation;
adding an enzyme preparation comprising naringinase to the solution;
maintaining the conditions of the solution suitable for enzyme incubation during
an incubation period;
terminating the incubation period by changing the conditions of the solution to
conditions unsuitable for said enzyme incubation, said solution at this point
being an isoquercitrin-enriched composition;
wherein the proportion of isoquercitrin in the composition is controlled by adjusting the
duration of the incubation period.
2. The method of Claim 1 wherein said composition also contains quercetin as a result of
said enzyme incubation.
3. The method of Claim 2 wherein the relative proportion of quercetin and isoquercitrin is
controlled by adjusting the duration of the incubation period.
4. The method of Claim 1 wherein the duration of the incubation period is dependent on the
activity of the enzyme preparation.
5. The method of Claim 1 wherein the duration of the incubation period is in the range of
1-48 hr.
6. The method of Claim 1 wherein the conditions of the solution during enzyme incubation
include temperature and pH level.

7. The method of Claim 6 wherein the temperature of the solution during enzyme incubation is in the range of 50-75°C.
8. The method of Claim 6 wherein the pH of the solution during enzyme incubation is in the range of 4-8.
9. The method of Claim 1 wherein the terminating conditions of solution are an acidic pH and a temperature of substantially 80°C.
10. The method of Claim 1 further comprising purification of said solution following termination of said incubation period.
11. The method of Claim 10 wherein the purification of said solution following termination of said incubation period is conducted using conventional biochemical purification.
12. The method of Claim 1 further comprising the addition of a β -D-glucosidase inhibitor to the solution to control the relative proportion of rutin, quercetin and isoquercitrin in the solution.
13. The method of Claim 12 wherein said β -D-glucosidase inhibitor is added to the solution before the addition of said enzyme preparation to the solution
14. The method of Claim 12 wherein the β -D-glucosidase inhibitor has the properties of D- Δ -gluconolactone.
15. The method of Claim 14 wherein the β -D-glucosidase inhibitor is D- Δ -gluconolactone.
16. The method of Claim 15 wherein the concentration of D- Δ -gluconolactone is greater than 1 mM.

17. The method of Claim 1 wherein the enzyme preparation comprises α -L-rhamnosidase.
18. The method of Claim 17 further comprising terminating the incubation period by denaturing the enzyme α -L-rhamnosidase.
19. An isoquercitrin enriched composition manufactured by the method of Claim 1.
20. The isoquercitrin-enriched composition of Claim 19 wherein the ratio of rutin to isoquercitrin is less than 20:1 by weight.
21. The isoquercitrin-enriched composition of Claim 19 wherein the ratio of quercetin to isoquercitrin is greater than 0.003:1 by weight.
22. An isoquercitrin-enriched composition having bioactive properties including at least one of angiotensin-converting enzyme inhibitory, anti-inflammatory, anti-tumor, anti-viral, anti-oxidative, free radical scavenging, cancer preventative, cardioprotective, proteinase-inhibitory, protein kinase C inhibitory, tyrosine protein kinase inhibitory, topoisomerase II inhibitory and protein-cleaving enzyme inhibitory properties.
23. The isoquercitrin-enriched composition of Claim 22, wherein the bioactive properties of said composition are used in the prevention of at least one of cardiovascular disease, stroke, capillary fragility, arteriosclerosis, trauma, oxidative stress, hypertension, elevated cholesterol, elevated triglycerides, hyperglycemia, types II diabetes, obesity and related disorders, Alzheimer's disease, Parkinsonism, asthma and cancers.

24. A process for preparing a rutin enriched composition from biomass containing rutin, the process comprising:
- performing a flavonoid extraction process on the biomass using an aqueous solution comprising water or alcohol;
 - filtering the solution to produce an extract solution;
 - allowing the extract solution to stand such that a precipitate forms;
 - collecting and drying the precipitate to form the rutin enriched composition.
25. The process of Claim 24 wherein the flavonoid extraction process comprises fragmenting the biomass and agitating it in the aqueous solution.
26. The process of Claim 24 further comprising concentrating the extract solution to form a concentrated extract solution having less than one fifth of its original volume prior to allowing the extract solution to stand.
27. The process of Claim 24 wherein the plant biomass comprises biomass from a member of the genus of *Fargopyrum*.
28. The process of Claim 24 wherein the biomass comprises at least one of: leaves of St. John's Wort; *Ginkgo biloba*; alfalfa; mulberry; algae; apple peels; pear peels; onion skins; asparagus tips; and rose hip pericarps.
29. An isoquercitrin enriched composition manufactured by a method comprising:
- providing a solution having rutin suspended therein at conditions suitable for enzyme incubation;
 - adding an enzyme preparation comprising naringinase to the solution;
 - maintaining the conditions of the solution suitable for enzyme incubation during an incubation period;

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terminating the incubation period by changing the conditions of the solution to conditions unsuitable for said enzyme incubation, said solution at this point being an isoquercitrin-enriched composition;
wherein the proportion of isoquercitrin in the composition is controlled by adjusting the duration of the incubation period; and
wherein the rutin is derived by the process of Claim 24.